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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,708	12/03/2004	Takuo Funaya	Q85154	6730
23373	7590	10/24/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EDMONDSON, LYNNE RENEE	
		ART UNIT		PAPER NUMBER
		1725		

DATE MAILED: 10/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/516,708	FUNAYA ET AL.	
	<b>Examiner</b> Lynne Edmondson	<b>Art Unit</b> 1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 31 August 2005.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 9-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 9-32 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 31 August 2005 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 12/3/04.
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

**DETAILED ACTION**

***Specification***

1. The disclosure is objected to because of the following informalities: The specification contains geometric symbols on page 18 lines 6, 7 and 10 and page 24 lines 5, 6, 10 and 11. It is not clear what the symbols are intended to represent. They are presumed to be typographical errors.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 9, 15, 21 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Murata et al. (JPN 09-94687 A, IDS).

Murata teaches an electronic component formed by soldering with a solder comprising 7 to 10% Zn, up to 6% Bi and 0.1% Ag in a balance of Sn (abstract).

4. Claims 9-11, 13-17, 19-23, 25-29, 31 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawashima et al. (USPN 5690890).

Kawashima teaches an electronic component soldered to a board (col 1 lines 35-48 and col 5 lines 30-40) by soldering with a solder comprising up to 10% Zn (col 2 lines 28-36), at least 0.1% Bi (col 2 lines 4-11) and 0.1% Ag (col 2 lines 43-45) in a balance of Sn (col 1 line 65 – col 2 line 14 and claim 1). Powder diameter is 15 to 50 microns (col 4 lines 1-7). Solder is mixed with 5-20% flux (col 4 lines 8-19 and lines 63-67).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 12, 18, 24 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawashima et al. (USPN 5690890) in view of Yamaguchi et al. (US 2001/0025875 A1).

Kawashima teaches an electronic component soldered to a board (col 1 lines 35-48 and col 5 lines 30-40) by soldering with a solder comprising up to 10% Zn (col 2 lines 28-36), at least 0.1% Bi (col 2 lines 4-11) and 0.1% Ag (col 2 lines 43-45) in a balance of Sn (col 1 line 65 – col 2 line 14 and claim 1). Powder diameter is 15 to 50 microns (col 4 lines 1-7). Solder is mixed with 5-20% flux (col 4 lines 8-19 and lines 63-67).

However there is no disclosure of a narrower powder size range.

Yamashita teaches a Sn-Zn-Bi-Ag solder (Table 1) powder mixed with flux wherein the powder size falls within the range of 30 to 40 microns (paragraph 30).

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ a narrow powder size range (within 10 micrometers) to control paste properties such as thixotropy and sag resistance (Kawashima, col 4 lines 1-7).

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Habu et al. (USPN 6649127) and Munekata et al. (US 2004/0062679 A1).
  
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne Edmondson whose telephone number is (571) 272-1172. The examiner can normally be reached on Monday through Thursday from 6:30 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lynne Edmondson  
Primary Examiner  
Art Unit 1725

UV6  
10/26/06

LRE